DATE **ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)** February 1999 **BUDGET ACTIVITY** PE NUMBER AND TITLE 5 - Engineering and Manufacturing Development 0604223A Comanche FY1998 FY 1999 FY 2000 FY 2001 FY 2002 FY 2003 FY2004 FY2005 **Total Cost** Cost to COST (In Thousands) Actual Estimate Estimate Estimate Estimate Estimate Estimate Estimate Complete 744860 770041 Total Program Element (PE) Cost 262601 364784 427069 565800 770569 379919 Continuina Continuing DC72 T800 Engine Engineering Development (LH) 42097 38019 33527 32242 58017 50252 13461 Continuing Continuing D2LT Comanche Operational Test 49 5871 1318 1089 722 5231 Continuing Continuing D327 Comanche 220504 326765 393493 532469 711830 688737 755262 374688 Continuina Continuina

A. <u>Mission Description and Budget Item Justification</u>: This program element provides for the development and operational testing and evaluation of the RAH-66 Comanche and the T800 growth engine. The Comanche is a multi-mission aircraft optimized for the critical battlefield mission of tactical armed reconnaissance. It provides a globally self-deployable attack platform for light/contingency forces. Comanche provides the solution to reconnaissance deficiencies of no night/adverse weather/high/hot/stand-off capability and is a key component on the digitized battlefield in winning the information war. The Comanche is the Army's technology leader and provides significant horizontal technology transfer within the Army and DoD. Project DC72 provides for continued development and qualification of the T800 growth engine and air vehicle support for integration into the Comanche aircraft. Project D2LT includes funding for the operational testing of Comanche to include modeling and simulation accreditation for Early User Test, Limited User Test and Initial Operational Test and Evaluation. Project D327 provides for development of the airframe, mission equipment package, integration and qualification of the complete system to include training and logistic support.

B. Program Change Summary	<u>FY 98</u>	FY 1999	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget (<u>FY 1999</u> PB)	272187	367823	438723	586385
Appropriated Value	282009	367823		
Adjustments to Appropriated Value				
a. Congressional General Reductions	-9822	-3039		
b. SBIR / STTR	-6686			
c. Omnibus or Other Above Threshold Reductions				
d. Below Threshold Reprogramming	-2900			
e. Rescissions				
Adjustments to Budget Years Since FY 1999 PB			-11654	-20585
Current President's Budget (FY 2000/2001 PB)	262601	364784	427069	565800

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Exhibit R-2 (PE 0604223A)

ARMY RDT&E BUD	GET ITE	M JUST	TIFICA T	TION (R-	2A Exhi	bit)		February 1999			
BUDGET ACTIVITY 5 - Engineering and Manufacturing D	Developm	ent		NUMBER AND 604223A		е				PROJECT DC72	
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost	
DC72 T800 Engine Engineering Development (LH)	42097	38019	3352	7 32242	58017	50252	13461	0	Continuing	Continuing	

A. <u>Mission Description and Justification:</u> This project includes tasks to design, develop and qualify an advanced technology engine. It provides for the continued development and qualification of the T800 growth engines and air vehicle support for integration of same into the Comanche aircraft. The growth engine is for the Army's RAH-66 Comanche and other applications.

FY 1998 Accomplishments:

•	10301	Continued	engine	air v	vehicle	support
---	-------	-----------	--------	-------	---------	---------

- 19061 Continued growth engine development
- 7437 Continued contractor development testing
- 5298 Continued manufacturing growth engines for flight test

Total 42097

FY 1999 Planned Program:

- 4200 Continue engine air vehicle support
- 15646 Continue growth engine development
- 6642 Continue contractor development testing
- 2001 Complete manufacturing of growth engines for flight test
- 9530 Pre-Production Prototype (PPP) Program air vehicle support

Total 38019

FY 2000 Planned Program:

- 9835 Continue PPP program air vehicle support
- 4318 Continue contractor development testing
- 14603 Productionization of T801 engine design
- 4771 Begin PPP Program engine manufacturing

Total 33527

Project DC72 Page 2 of 12 Pages Exhibit R-2A (PE 0604223A)

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

DATE

February 1999

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604223A Comanche

DC72

FY 2001 Planned Program:

- 9997 Continue PPP program air vehicle support
- 5811 Continue contractor development testing
- 4308 Productionization of T801 engine design
- 12126 Continue PPP Program engine manufacturing

Total 32242

B. Other Program Funding Summary: There are no other related RDT&E or other appropriation efforts.

C. Acquisition Strategy: Continue work with current contractor leading to FAA certification, military qualification and production.

D. Schedule Profile	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Continue engine air vehicle support	1-4Q	1Q					
Continue growth engine development	1-4Q	1-4Q					
Continue contractor development testing	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-3Q
Continue mfg growth engines for flight test	1-4Q	1-4Q					
Complete mfg of growth engines for flight test		1-4Q					
PPP program air vehicle support		2-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Productionization of T801 engine design			1-4Q	1-4Q	1-4Q	1-4Q	1-3Q
Begin PPP Program engine manufacturing			3-4Q				
Continue PPP Program engine manufacturing				1-4Q	1-4Q	1-4Q	1-4Q

Project DC72 Page 3 of 12 Pages Exhibit R-2A (PE 0604223A)

	AF	RMY RDT&E CO	OST AN	IALYSI	S (R-3)				DAT		uary 199	99
BUDGET ACTIVITY 5 - Engineering and	Manufact	uring Developme	nt		UMBER AND 04223A		che				PR	OJECT C72
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Targe Value o Contrac
a. DAAJ09-92-C-0453	C/CPFF	LHTEC, Indiana	273965	37726	Oct 98	33247	Dec 99	31932	Dec 00	Cont	376870	Con
b. DAAJ09-85-C-B017	C/FFP	LHTEC, Indiana	276821							0	276821	27682
c. DAAJ09-93-C-0518	C/CPFF	LHTEC, Indiana	460							0	460	460
d. DAAJ09-85-C-B019	C/FFP	AVCO, Connecticut	128526							0	128526	12852
e. PMO/Gov't Agencies	MIPR		13993	143	Qtrly	220	Qtrly	250	Qtrly	Cont	14606	Con
Subtotal Product Development			693765	37869		33467		32182			797283	
II. Support Costs	Contract Method &	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award	FY 2000 Cost	FY 2000 Award	FY 2001 Cost	FY 2001 Award	Cost To Complete	Total Cost	Targe Value o
DATEC	Туре		06		Date		Date		Date	0	0.6	Contrac
a. PATS contractsb. Rail	C/FFP C/FFP		96 2806							0	96 2806	96
	1		400							0	400	2806
c. Other Contracts Subtotal Support Costs:	Agreement		3302							U	3302	3302
Subtour Support Costs.			3302							<u> </u>	3302	330
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Targe Value o Contrac
a. Government Agencies	MIPR		23052	150	Qtrly	60	Qtrly	60	Qtrly	Cont	23322	Con
Subtotal Test and Evaluation:			23052	150		60		60			23322	
IV. Management Services: Non	e											
Project Total Cost:			720119	38019		33527		32242			823907	
Project DC72				Page 4 of	12 Pagas			ı	Eyhihit R-	3 (PE 060	4223 ∆)	
110,000 DC/2				i uge 4 Uj	12 i uges					<u> </u>	72201	Item 75

DATE **ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)** February 1999 BUDGET ACTIVITY PE NUMBER AND TITLE **PROJECT** 5 - Engineering and Manufacturing Development D₂LT 0604223A Comanche FY1998 FY 1999 FY 2000 FY 2001 FY 2002 FY 2003 FY2004 FY2005 **Total Cost** Cost to COST (In Thousands) Actual Estimate Estimate Estimate Estimate Estimate Estimate Estimate Complete D2LT Comanche Operational Test 49 1089 722 5871 1318 5231 Continuing Continuing

A. <u>Mission Description and Justification</u>: This project provides for progressive test requirements in support of the test and fielding of the RAH-66 Comanche helicopter. Requisite activities include Force Development Tests I, II, III and IV dedicated to tactics, techniques and procedures, Electro Optical Sensor System (EOSS) Survey and Limited User Test (LUT) that provide operational input early in the system's life cycle, the Army Training Evaluation Program (ARTEP) and Initial Operational Test and Evaluation (IOT&E) in support of a Milestone III production decision.

FY 1998 Accomplishments: Program not funded in FY 1998

FY 1999 Planned Program: Program not funded in FY 1999

FY 2000 Planned Program:

- 30 Independent evaluation at contractor test facility in support of LUT
- 9 Support Comanche Portable Cockpit for Force Development, Test &Evaluation (FDT&E) Phase I
- 10 Independent evaluation assessment of Mission Equipment Package subcomponents at contractor sites

Total 49

FY 2001 Planned Program:

- 484 Execution of FDT&E I, Phases II and III at Fort Rucker
- 105 Continue independent evaluation at contractor test facility
- 250 Initiate subcomponent assessment by Operational Test & Evaluation Command (OPTEC) for their Systems Evaluation Report
- 250 Support PPP Program pilot's initial evaluation of Mission Equipment Package for LUT

Total 1089

- B. Other Program Funding Summary: There are no other related RDT&E or other appropriation efforts.
- C. Acquisition Strategy: This project is for test and evaluation effort to support Comanche acquisition.

Project D2LT Pages Exhibit R-2A (PE 0604223A)

DATE **ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)** February 1999 BUDGET ACTIVITY PE NUMBER AND TITLE PROJECT 5 - Engineering and Manufacturing Development D₂LT 0604223A Comanche **D. Schedule Profile** FY 1998 FY 1999 FY 2000 FY 2001 FY 2002 FY 2003 FY 2004 FY 2005 Prepare for FDT&E Phase I 2Q Conduct FDT&E I, Phase I 3Q Conduct independent evaluation at contractor test 1-4Q 1-4Q 1-4Q 1-4Q 1-4Q facility supporting LUT Conduct FDTE I. Phase II and III 3-4 Q Prepare for EOSS Survey 4Q Conduct EOSS Survey 4Q Prepare for FDT&E II 3-40 Conduct FDT&E II 4Q Prepare for LUT 40 Conduct LUT 40 Prepare for FDT&E III 40 Conduct FDT&E III 3-40 Prepare for FDT&E IV and ARTEP 4Q 3-4Q Prepare for IOT&E 40 3-40

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Exhibit R-2A (PE 0604223A)

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Project D2LT

	AR	MY RDT&E CO	OST AN						DAT	E Febru	uary 199	9
BUDGET ACTIVITY 5 - Engineering and	Manufactu	ıring Developme	nt		UMBER AND 04223A	Coman	che		-			OJECT 2LT
I. Product Development: Not ap	plicable											
II. Support Costs: Not applicable	e											
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Government Agencies	Туре	OPTEC, VA	0	0	Date	49	Qtrly	1089	Qtrly	Cont	1138	Cont
Subtotal Test and Evaluation:		Of TEC, VII	0	0		49	Quiy	1089	Quily	Cont	1138	Cont
Project Total Cost:						49		1089			1138	
Project D2LT				Page 7 of	12 Pages			E	Exhibit R-	3 (PE 060-	4223A)	

ARMY RDT&E BUD	GET ITE	M JUST	TIFIC/	ATIO)N (R-2	2A Exhi	bit)		DATE February 1999			
BUDGET ACTIVITY 5 - Engineering and Manufacturing D			ROJECT)327									
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate		FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost	
D327 Comanche	220504	326765	393	3493	532469	711830	688737	755262	374688	Continuing	Continuing	

A. <u>Mission Description and Justification</u>: The Comanche helicopter is a highly sustainable and operationally flexible armed reconnaissance light helicopter, incorporating significant reductions in personnel and support equipment, capturing the latest combat technologies and capable of accepting upgrades to meet everchanging threats. It will dominate the battlefield in the close, deep and rear operations; provide a decisive air cavalry capability in day, night, and adverse weather. It will be operationally tailorable to regional conflicts and provide the battle commander with timely, detailed reconnaissance information and an unprecedented level of lethality.

FY 1998 Accomplishments:

- 19333 Continued digitization effort
- 146130 Continued engineering development
- 15670 Updated prototype #1 and continued manufacturing of #2
- 39371 Continued flight test program of prototype #1

Total 220504

FY 1999 Planned Program:

- 112025 Continue Mission Equipment Package (MEP) development
- 133747 Continue PPP engineering development
- 66680 Continue development testing and flight test program for prototype #1 and conduct first flight of prototype #2
- 2809 Continue to update prototypes #1 and #2
- 11504 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) programs.

Total 326765

FY 2000 Planned Program:

- 156496 Continue MEP development
- 153493 Continue PPP engineering development
- 73890 Continue development testing and flight test program for prototypes #1 and #2
- 3764 Continue to update prototypes #1 and #2
- 5850 Begin material procurement for PPP aircraft

Total 393493

Project D327 Page 8 of 12 Pages Exhibit R-2A (PE 0604223A)

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

DATE

February 1999

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604223A Comanche

D327

FY 2001 Planned Program:

- 218599 Continue MEP development
- 186210 Continue PPP engineering development
- 99470 Continue development testing and flight test program for prototypes #1 and #2
- 4067 Continue to update prototypes #1 and #2
- 24123 Continue material procurement for PPP aircraft and begin manufacturing PPP aircraft

Total 532469

B. Other Program Funding Summary	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Total Cost
APA									
A08300 Comanche						5388	183197	1004513	Cont

C. Acquisition Strategy: Continue work with current contractor leading to Engineering and Manufacturing Development and production.

D. Schedule Profile	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Continued digitization effort	1-4Q							
Continued engineering development	1-4Q							
Updated prototype #1 and continued mfg of #2	1-4Q							
Continued flight test program of prototype #1	1-4Q							
Continue MEP development		1-4Q						
Continue PPP Program engineering development		1-4Q						
Continue development testing & flight test		1-4Q	1-4Q	1-4Q	1-4Q			
program for prototype #1								
Conduct first flight of prototype # 2		3Q						
Continue to update prototypes #1 and #2		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	
Begin material procurement for PPP Prog aircraft			3Q					
Continue material procurement and begin				1-4Q				
manufacturing PPP aircraft								
Continue manufacturing of PPP Program aircraft					1-4Q	1-4Q	1-4Q	

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nt FY 1999 FY			LE				ary 1999				
	060422		PE NUMBER AND TITLE								
FY 1999 FY		0604223A Comanche									
	Y 2000 F	Y 2001	FY 2002	FY 2003	FY 2004	FY 2005					
					1Q						
					1-4Q	1-4Q					
					3Q						
						2Q					
						1-4Q					
						1Q					
					D 10 (12 D	Process 10 of 12 Process	Page 10 of 12 Pages Exhibit R-2A (PE 0604				

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	Al	RMY RDT&E CO	OST AN	ALYS	S (R-3)				DAT		uary 199	 99
BUDGET ACTIVITY	B.4		-1		UMBER AND		-1			1 00.	PROJECT D327	
5 - Engineering and	Manutact	uring Developme	nt 0604223A Comanche								D.	021
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Targe Value o Contra
a. DAAJ09-91-C-A004	C/CPIF	Boeing Sikorsky, PA	2401054	296206	Oct 98	365573	Oct 99	501026	Oct 00	Cont	3563859	Co
b. DAAJ09-87-D-A022 c. Product Development (Other Contracts)	C/FFP C/T&M	Veridian, VA	50180	7000 1393	Jan 99 Nov 98	6500 1500	Jan 00 Nov 99	6500 1600	Jan 01 Nov 00	Cont Cont	70180 4493	Co Co
d. Other Completed Contracts			370288								370288	37028
Subtotal Product Development:			2821522	304599		373573		509126			4008820	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Targ Value Contra
a. SysTeam	Type C/FFP	Huntsville, AL	15181	0	Date		Date		Date		15181	Contra 1518
b. TRAC	C/T&M	Trants vine, TE	13101	1500	Mar 99						1500	150
c. DAAB07-97-C-J020	C/T&M	AEG, Germany	375	1800	Jan 99		Jan 00		Jan 01		2175	Co
d. Other Contracts	C/T&M		25470	1390		1400		1500			29760	Co
e. Gov't Agencies	MIPR		104076	7542	Qtrly	8000	Qtrly	8500	Qtrly	Cont	128118	Co
Subtotal Support Costs: Remark: Funding includes GFE	directly relate	ed to test and evaluation.	145102	12232		9400		10000			176734	
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Targ Value Contra
a. Government Agencies	MIPR		22647	1072	Qtrly	1500	Qtrly	3923	Qtrly	Cont	29142	Co
Subtotal Test and Evaluation:			22647	1072		1500		3923			29142	
Project D327			i	Page 11 of	^c 12 Pages			ı	Exhibit R-	3 (PE 060	4223A)	
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		AF	RMY RDT&E CO	OST AN	ALYSI	S (R-3)		DAT	DATE February 19				
BUD	GET ACTIVITY				PE N	JMBER AND	TITLE			•		PRO	OJECT
5 -	Engineering and	Manufact	uring Developme	nt	060)4223A	Coman	che				D3	327
IV.	Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a.	DAAJ09-96-D-0028	C/T&M	DRC, Massachusetts	2667	1195	Jan 99	1220	Jan 00	1220	Jan 01	Cont	6302	Contract
b.	Other Contracts	C/T&M	BitC, Massachasetts	323	350	Dec 98	200	Dec 99	200	Dec 00	Cont	1073	Con
c.	PMO/Gov't Agencies	MIPR		020	7317	Oct 98	7600	Oct 99	8000	Oct 00	Cont	22917	Cont
	Subtotal Management Services:			2990	8862		9020		9420			30292	
		Ī							I			Ţ	
	Project Total Cost:			2992261	326765		393493		532469			4244988	

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